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A BIOPSYCHOSOCIAL PERSPECTIVE ON  
ALCOHOL USE AND ABUSE ON THE COLLEGE CAMPUS

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A Thesis  
Presented to the  
Faculty of  
California State University,  
San Bernardino

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Science  
in  
Psychology

---

by  
Carol Ann Davis  
December 1995

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ALCOHOL USE AND ABUSE ON THE COLLEGE CAMPUS

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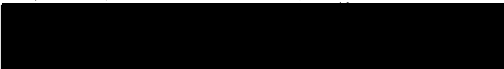
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## ABSTRACT

Positive attitudes about responsible drinking behaviors have previously been found to be correlated with negative consequences due to drinking among college students (Gonzalez, 1990). This study investigated alcohol abuse on a college campus from a cultural context or, a biopsychosocial perspective, and supported that the higher a students attitude score, the lower their scores for absenteeism and poor performance. This study also found that males drank greater quantities of alcohol than did females; although, males did not drink more often than females.

This study did not support previous findings in a national study (Presley, Meilman, & Lysterla, 1994) that members of Greek organizations will have more negative consequences due drinking.

Many findings in this study are similar to the national study of colleges and therefore support the idea that there is a problem within the cultural context around drinking on a college campus and support the need for continued research. Future research should be focused on obtaining data that will facilitate better educational/preventative programs. Programs that are developed from a biopsychosocial perspective might be generalizable to the workplace.



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## TABLE OF CONTENTS

ABSTRACT . . . . .	iii
ACKNOWLEDGEMENTS . . . . .	iv
LIST OF TABLES . . . . .	vii
INTRODUCTION . . . . .	1
Workplace . . . . .	2
College . . . . .	6
Current Study . . . . .	11
Hypotheses . . . . .	12
PILOT STUDY . . . . .	15
Method	
Participants . . . . .	15
Materials . . . . .	15
Procedure . . . . .	16
Results . . . . .	17
Discussion . . . . .	19
THESIS STUDY. . . . .	21
Method	
Participants . . . . .	21
Materials . . . . .	21
Procedure . . . . .	24
Results	
Data Screening . . . . .	27
Reliability Analyses . . . . .	28
Testing of Hypotheses . . . . .	33
Ancillary Tests . . . . .	38

Discussion . . . . .	40
APPENDIX A: Consent Form . . . . .	48
APPENDIX B: Debriefing Form . . . . .	49
APPENDIX C: Negative Consequences Pilot Scale (PNC) . .	50
APPENDIX D: Negative Consequences for Any Reason Scale (NC) . . . . .	51
APPENDIX E: Negative Consequences Due to Drinking Scale (ANC) . . . . .	52
APPENDIX F: College Drinking Attitude Scale (CDAS) . .	54
APPENDIX G: Demographic Questionnaire . . . . .	57
REFERENCES . . . . .	60

## LIST OF TABLES

### Table 1

Reliability Analysis -- Negative Consequences Pilot Scale (PNC) . . . . .	18
--	----

### Table 2

Demographics . . . . .	22
------------------------	----

### Table 3

Reliability Analysis -- Negative Consequences for Any Reason Scale (NC) . . . . .	29
--	----

### Table 4

Reliability Analysis -- Negative Consequences Due to Drinking Scale (ANC) . . . . .	30
--	----

### Table 5

Reliability Analysis -- College Drinking Attitude Scale (CDAS) -- Adjusted . . . . .	31
---	----

### Table 6

Means and Standard Deviations for ETOH1, ETOH2, ETOH by Gender . . . . .	37
---	----

### Table 7

Means and Standard Deviations for NEGCONS and ANEGCONS by Greek membership. . . . .	37
--	----

### Table 8

Percentage of Negative Consequences Due to Drinking: A Comparison to a National Study . . . . .	39
--	----

## INTRODUCTION

The use of mind altering chemicals, including alcohol, has existed since ancient times. Evidence of alcohol use can be traced as far back as 6000 B.C.E. and has been an integral part of human history ever since (Levy & Kunitz, 1994). Historically and presently, the response to boredom, frustration, anxiety, and/or all levels of stress has been to explore the magic of chemical escape. Often, alcohol has been the chemical of choice (Chambers, Inciardi, & Siegal, 1975).

The drinking of alcoholic beverages is still very much a part of American culture today. Having a drink of alcohol has become the standard means of celebrating the birth of a child, a promotion, an election, and many other significant events (Roman, 1990). Ironically, for as long as it has been culturally acceptable to drink alcohol, society has attempted to address the abuse of alcohol. Alcohol abuse has affected all segments of society and there are multiple consequences for society at a cost of \$86 billion annually. It has been estimated that 100,000 deaths can be attributed to the abuse of alcohol annually; almost one-fourth of all persons admitted to general hospitals have alcohol related problems. It is now well known that alcohol can be responsible for multiple congenital defects. Further, alcohol has been found to be a variable in one-half of all homicides and serious assaults, and in many sex-related

crimes, robberies, and domestic violence (U.S. Department of Health and Human Services, 1993).

The workplace and the college campus are clear reflections of society at large and consequently no less immune to alcohol abuse. However, no research can be found that has addressed the parallels between alcohol use on the college campus and alcohol use in the workplace. Most college students, it is assumed, will be entering the workplace; many of them will possibly assume management positions. It is important and relevant, therefore, to address the similarities and differences. Looking at the attitudes, beliefs, and behaviors regarding alcohol use and abuse of potential workplace managers may cast a new hue or a brighter light on the issue of alcohol abuse in the workplace.

### Workplace

Alcohol has been shown to be an integral part of many workplace cultures since colonial times in America but has become an increasing concern for employers in the last two decades (Ames, 1989; Ames & Janes, 1990, 1992; Roman, 1990), more as a result of a shift in society's attitude toward the use of alcohol, rather than a sudden surge of abuse. Prior to the 1970s, alcohol was acceptable in the workplace and, in fact, often used as a reward for a job well done (Ames, 1989).

Research has paralleled society's attitude shift and

the last two decades have provided us with a bountiful variety of research on the abuse of alcohol in the workplace. The National Center for Health Statistics (NCHS) conducted a very detailed study in 1988 on alcohol abuse by occupations (Stinson, DeBaakey, & Steffens, 1992) and presented their findings as "percentages of prevalence". The range for non-skilled labor was 18.64 (farm workers) to 27.98 (vehicle washers), skilled labor and technical trades ranged from 1.93 (teachers aides) to 37.08 (bricklayers), and the range for professionals was 1.5 (dentists) to 21.7 (systems researchers, analysts). However, more traditional research has been from a psychological perspective, or focused on individual productivity of employees.

Data has most often been collected on individual variables such as absenteeism (Ayala, 1993; Lehman & Simpson, 1992; Webb, Redman, Hennrikus, Kelman, Gibberd, & Sanson-Fisher, 1994), workplace accidents (Dawson, 1994; Holcom, Lehman & Simpson, 1993; Webb et al, 1994), and job performance (Blum, Roman & Martin, 1993). Employees in high-risk jobs who reported drinking at work are three times more likely to have work accidents than high-risk employees who do not drink at work (Holcom, Lehman, & Simpson, 1993). Another study found that 67% of the employees who are problem drinkers have experienced at least one work injury compared to 43% of the non problem drinkers and, further, that absences related to work injuries were 2.7 times higher



among problem drinkers (Webb et al., 1994). Most of the research clearly shows a positive correlation between problem drinking and increased tardiness and absenteeism (Blum & Roman, 1992; Blum, Roman, & Martin, 1993; Webb et al., 1994). In a study of clients of Employee Assistance Programs (EAPs) over a two year period from 84 work-sites, 33.5% of clients with alcohol problems reported attendance problems versus 18.8% of the clients without alcohol problems (Blum & Roman, 1992). In fact, absenteeism among problem drinkers has been estimated as high as 8.3 times greater than normal (Bernstein & Mahoney, 1989).

There has been limited research which considered problems in the workplace as the cause of heavy drinking (Roman & Trice, 1970; Trice, 1992), and more recently, that the workplace culture invites, or enables, drinking on the job (Ames & Janes, 1992; Roman, Blum, & Martin, 1992; Trice, 1992). Yet, other research identifies problem drinking as the cause of workplace problems (Webb et al, 1994). The seemingly incongruity of the research would appear on the "face of it" to be problematic in terms of cause and effect. Upon closer scrutiny, however, it gives credence to the complexity of the problems related to alcohol abuse.

Most organizations have formal policies in place regarding alcohol and/or drug use in the workplace. However, research has shown that in spite of the implementation of formal policies in the workplace to deter

alcohol abuse, attitudes and actual practices have changed little. The behavioral expectation of the workplace culture not only allows drinking on the job, but often encourages it (Ames & Janes, 1992). For example, 75% of the hourly paid workers in one large manufacturing plant reported that it was easy for them to drink at their work stations (Ames & Delaney, 1992). In a study of workers from a recently closed manufacturing plant it was found that the workers who had been heavy drinkers in a work-related "drinking subculture" were drinking less after they were laid off, lending support to the idea of the strength or influence of membership in a "drinking subculture" (Ames & Janes, 1987). Those same workers reported that management turned their backs to on-the-job drinking in order to keep assembly lines moving. Ames and Janes (1987) concluded that such work-site drinking cultures "... included a well-developed system of beliefs about alcohol use that made heavy work-related drinking acceptable for enhancing conviviality and interpersonal communication" (p. 953). Similar behavioral expectations and, subsequently, behavior and attitudes, have been found in the culture of the college campus (Klein, 1989; Presley, Meilman, & Lyster, 1994) and especially in subcultures, such as Greek organizations (Klein, 1989).

Alcohol abuse in the workplace and on the college campus is really a holographic phenomenon of society at large. When a piece of a hologram is broken off and

illuminated, the image from the original hologram can be seen in its entirety (Reynolds & Martin, 1993; Swartz & Ogilvy, 1979). Consequently, the diversity of research on alcohol use and abuse in American society in general is reflected in the diversity of research in the workplace and, subsequently, in all subgroups of the culture, such as on the college campus.

### College

Concern about alcohol abuse on college campuses is relatively new with little research prior to the 1970s (Klein, 1989). As with research in the workplace, most of the research has typically attempted to focus on "causes" of alcohol abuse as being some underlying defect in individuals.

However, similarities of drinking patterns in society, the workplace, and the college campus may be more visible when approached from a biopsychosocial perspective. This model includes the disease concept of alcoholism and/or pathology of some individuals who may abuse alcohol. But, more importantly, it allows us to view the sociological and/or cultural perspectives as well.

Alcohol use on the college campus is as acceptable as it has historically been in the workplace and society (Grossman, Canterbury, Lloyd, & McDowell, 1994). Again, as with research in the workplace, the limited research on alcohol use and abuse on the college campus has primarily

been focused on causes, or motivation of individuals. Some have studied young adults, in general, and have reported that women drink for emotional problems and men drink to rebel or augment social bonding (Ashenberg-Straussner, 1985; Berkowitz & Perkins, 1986; Fellios, 1989). Other studies which focused on college populations have found similar gender differences in motivation (Brennan, Walfish, & AuBuchon, 1986; Thombs, Beck, & Mahoney, 1993; Wright, 1983). Ashenberg-Straussner (1985) have cautioned that even though their study suggests gender differences in drinking habits, such research could lead to negative stereotyping of female drinkers. However, Thombs et al., (1993) completed a study which they believe provides some evidence for gender differences in both motivation and practice of abusive drinking. They conducted separate discriminant function analyses to determine which social context variables were of relative importance in each gender. Interestingly, this analysis revealed a different pattern for males and females. In separating high intensity drinkers from low intensity drinkers, the most important variable based on structure coefficients for females was emotional pain (.791), followed by social facilitation (.680). On the other hand, social facilitation (.927) was the most important variable for males, followed by relaxation (.542), and then emotional pain (.419). They concluded that females abuse alcohol to deal with emotional pain and males abuse alcohol to

facilitate social interactions.

Still other studies have found no significant gender differences in the drinking habits of college students (Gomberg, 1979; Knupfer, 1982; Ratliff & Burkhart, 1984). Montgomery, Benedicto and Haemmerlie (1993) found that both female and male college students abused alcohol more for social reasons than for emotional medication.

The consequences of problematic drinking for the college student are similar to those found in the workplace. A recent comprehensive study of 78 randomly selected colleges across the United States (n = 58,625) found evidence for lower grades (poor performance) and missing class (absenteeism) associated with problem drinking (Presley, Meilman, & Lyster, 1994). Their study found that 47% of the students had two or more alcoholic drinks per week and 8% consumed 16 or more drinks per week. Students' self-reported consequences of drinking included: poor performance on a test (23.4%), missing a class (30.2%), and accidents (16.1%). Their study also found an association of grade average and the average number of drinks per week: "A" grade, 3.3 drinks per week; "B" grade, 5.0 drinks per week; "C" grade, 6.5 drinks per week; and "D" or "F", 10.1 drinks per week (p.252). They further found that the quantity and frequency of alcohol consumption and the number of negative consequences associated with drinking was greater for males than for females.

Several studies have also found that college students in Greek organizations abused alcohol more than non-Greek students (Klein, 1989; Montgomery, Benedictio & Haemmerlie, 1993). In fact, students who drink and are affiliated with Greek organizations report two times the number of problems such as missing classes and lower grades than non-Greek students. Furthermore, residents of fraternity houses had almost three times the number of problems associated with drinking than did residents of campus dormitories (Klein, 1989).

Greek organizations can be considered a subculture of the college culture. Just as in society and subsequently the workplace, the culture on college campus has a set of rules, or norms, which dictate the acceptable behavior for that environment, regardless of formal regulations, or "rules" (Ames & Janes, 1992; Scott & Ambroson, 1994). Subcultures, such as Greek and other social organizations can have different or additional norms for acceptance (Canterbury et al., 1992). "Understanding the relationships between, and the causes of, different sets of drinking norms is an important task in prevention research" (Ames & Janes, 1992, p.113).

The similarities between the workplace culture and the culture of the college campus are numerous when viewed from a sociological perspective. However, when viewed from only a psychological perspective there are more differences than

similarities which, again, supports the need for using a more all encompassing model such as the biopsychosocial model. For the purpose of the study, a biopsychosocial model will be defined as a model that views the abuse of alcohol from multiple perspectives: 1) that a person who abuses alcohol may have an biochemical allergy to alcohol or, a disease; 2) that a person who abuses alcohol may be experiencing stress or other mental, emotional reactions to his/her environment, and 3) that society, itself, may be a variable in why persons abuse alcohol. The biopsychosocial model does not eliminate the responsibility of the person who abuses alcohol but, rather, is a more all encompassing model which includes the beliefs and attitudes about the use of alcohol among subcultures in our society.

Unlike the workplace, the college campus is for the most part comprised of adolescents or young adults. They are "... at a stage of profound developmental flux" (Scott & Ambroson, 1994, p. 201). At this stage of development they may be even more vulnerable than workers in the workplace to cultural pressures to conform. Additionally, most bring to this new culture a previous set of beliefs and attitudes about drinking which were learned from their families (Scott & Ambroson, 1994). The unfamiliar culture of the college campus may support their previous beliefs and attitudes. On the other hand, the new culture in which they desire to be accepted, may contradict their beliefs and create cognitive



dissonance. Clearly, it is a complex issue. Designing successful intervention and prevention programs on the college campus is consequently no less of a complexity. Adding to the complexity is differentiating the abuse of alcohol from social drinking. However complex, addressing alcohol use and abuse on the college campus is clearly a necessity with 50% (Presley, Meilman & Lyster, 1994) to 74% (Gonzalez, 1990) of college students reporting that they were drinkers at the time they were surveyed. The negative consequences not only affect the immediate health and well-being of America's youth but surely without intervention their attitudes, beliefs and behaviors will continue into the workplace.

#### Current Study

This study incorporated a biopsychosocial approach similar to the cultural approach developed by Ames and Janes (1992) in their studies of alcohol abuse in the workplace. Their cultural conception model looks at interactions of personal and social stressors as well as informal and formal social controls on the availability of alcohol at the workplace. Intertwined with those interactions are factors external to the workplace including, but not limited to, attitudes and beliefs of individuals. Central to their cultural conception model are "work-related drinking subcultures" (Ames & Janes, 1992, p.118), which they define as "... groups that share a set of understandings about

alcohol use" (p.117). They have found an "... intriguing relationship between workplace environments and levels of drinking" (p.112); those relationships are "... acquired through a process of socialization to the work environment" (p.112). Clearly these findings can be applied to the socialization process on the college campus.

The primary focus of this study was to address alcohol abuse on a college campus. This study looked at one college campus in the southwestern United States to ascertain if there was indeed a problem with alcohol abuse on campus. This study looked at the attitudes, beliefs and behaviors around alcohol use on the campus as a whole and at subgroups on the campus. Gonzalez (1990) found that the quantity and frequency of alcohol consumption, as well as negative consequences of drinking, were far less for students who endorsed behaviors that were "identified as responsible alcohol-related behaviors" (p.129). It is felt that if attitudes can be changed at the college level, alcohol abuse both there and in the workplace could eventually be altered.

### Hypotheses

For the purpose of this study, a "drinker" was defined as someone who had consumed at least one alcoholic drink during the last 12 months (Klein, 1989). A "problem drinker" was defined as being anyone who reported at least one negative consequence related to drinking alcohol (ANC) in the last 12 months (Klein, 1989). Negative consequences

have been defined by Gonzalez (1990) as "... alcohol-related problems commonly reported by college students (e.g. being nauseated from drinking or driving after drinking too much)" (p. 126). According to the number of negative consequences reported, "problem drinkers" were ordered into one of three categories: "mildly impaired", one to five ANC; "moderately impaired", six to nine ANC; and "markedly impaired", ten or more ANC. This ordering of impairment is a modification of the classifications used by Klein (1989, p. 326).

Absentee score was a combination of students' report of how many times they missed a test and how many times they missed class. Injury score was based on how many times the students reported being hurt or injured requiring medical attention. Poor performance score was a total of students' reported times they performed poorly on a test, on an important project or paper, and did not complete an important project or paper.

The following hypotheses were tested:

Hypothesis 1: The higher a student's attitude score regarding responsible drinking behavior, the lower their absentee score will be.

Hypothesis 2: The higher a student's attitude score regarding responsible drinking behavior, the lower their injury score will be.

Hypothesis 3: The higher a student's attitude score

regarding responsible drinking behavior, the lower their poor performance score will be.

Hypothesis 4: The higher a student's attitude score regarding responsible drinking behavior, the lower their quantity and frequency of alcohol consumption score will be.

Hypothesis 5: Male students will report a significantly greater frequency and quantity of alcohol consumption than female students.

Hypothesis 6: Students in Greek organizations will report a significantly greater number of negative consequences related to drinking than non-Greeks.

## PILOT STUDY

### Method

Participants. Ninety undergraduate students from a two-year college located near the institution of the primary study were asked to volunteer in a written, questionnaire type study. Of the 90 surveys distributed, sixty six (73%) were returned. Male and female students were recruited from one introductory psychology class and were treated in accordance with Principle 9 of the "Ethical Principles of Psychologists" (American Psychological Association, 1981).

Materials. The first item presented to participants was a consent form (See Appendix A). A debriefing letter (Appendix B) was presented to the students immediately upon the conclusion of their participation.

Students were given a 25-item questionnaire (Appendix C) which was modified in two significant ways from the original 17-item "Negative Consequences" subscale used in the "Core Alcohol and Drug Survey Questionnaire study," (Presley, Meilman, & Lysterla, 1994) and in a college drinking attitude study (Gonzalez, 1990). The "Negative Consequence Pilot Scale" (PNC) included 16 items which were similar to the Core study. One of the items (performed poorly on a test or an important project) was divided into two items. Two new items (missed a test, and not completing or turning in an important project or paper), were added for a total of 20 negative consequence items. Five positive consequence

questions (See items 3, 8, 11, 17, 23 in Appendix C), designed to elicit more accurate self-reporting, were added and randomly placed, for a total of 25 items.

The second modification involved the answer format. Instead of the original scale anchors of "Never", "Once", "Twice", "3-5 Times", "6-9 Times", "10 or more Times", subjects were asked to respond with a number that represented the number of times the event had occurred in the last 12 months. The 25-item scale was designed to measure negative events. Eleven of the items were intended to identify drinking related to negative consequences.

Procedure. Students were asked to complete a questionnaire and were told that completion of the survey would take approximately 15 minutes of their time. Students were assured that their responses would be anonymous and for research purposes only. Students were informed that they could discontinue participation at any time without any penalty, and were asked to sign the consent form prior to participation.

Upon completion of the survey, students were debriefed and told where and when they could obtain research results should they so desire. This study was not expected to cause any discomfort; however, students were given information about who to contact for assistance if they did experience any discomfort, or distress.

It was felt that allowing for open ended answers would

increase the variability of the data. A reliability analysis was conducted on the scale.

### Results

The answer format of the pilot scale (PNC) presented a couple of scoring difficulties. Seven of the sixty-six students who returned surveys made written comments and no numerical values. While written comments can often be measured, scores for comments such as: "always", "too much to count", "now and then", were unattainable. The second difficulty was that students wrote improbable numerical values such as: "100+". Six of the sixty-six respondents reported large numerical values (i.e., "59 plus", "99+", "100+"). Although those numbers may have been real values for those students, the extreme values appeared to be outliers on the distribution. These subjects were excluded from the analysis.

A reliability analysis for the pilot scale indicated moderate internal consistency (See Table 1). Coefficient alpha was .74 with item-total correlations ranging from .000 to .777. Seven of the items (3, 5, 6, 12, 20, 24, 25) did not correlate, or correlated little, with the total score. Variable 3 (studying easier after drinking), and variable 20 (arrest for DWI, DUI) had no variance and a corrected item-total correlation of .000 because 100% of the students responded with a "0". Variable 5 (performing poorly on a test), variable 6 (missing a test), variable 12



Table 1

Reliability Analysis -- Negative ConsequencesPilot Scale (PNC)


---

<u>Items</u>	<u>Corrected Item Total Correlation</u>	<u>Alpha if Item Deleted</u>
var 1	.5581	.7152
var 2	.1546	.7433
var 3	.0000	.7457
var 4	.6677	.7178
var 5	-.0067	.7479
var 6	-.0171	.7460
var 7	.3167	.7419
var 8	.5429	.7150
var 9	.4562	.7387
var 10	.1074	.7450
var 11	.7773	.7270
var 12	.0566	.7454
var 13	.5000	.7390
var 14	.2581	.7381
var 15	.2455	.7424
var 16	.6009	.7364
var 17	.7732	.6947
var 18	.4331	.7235
var 19	.3561	.7329
var 20	.0000	.7457
var 21	.5233	.7436
var 22	.3014	.7489
var 23	.4803	.7272
var 24	.0931	.7450
var 25	.0738	.7468

---

Alpha = .744      N = 55

Negative Consequence Scale (PNC): Mean = 35.81;

Variance = 3289.855; Standard Deviation = 57.357.

Item-total Mean = 1.43

(trouble with the police), variable 24 (suicide thoughts or attempts), and variable 25 (being hurt or injured) all had correlations less than .093 due to the majority of respondents answering "Never", or "No". Of the 25 items, 9 had an item-total correlation less than .30.

### Discussion

The pilot study was conducted in order to investigate the viability of employing an alternate answer format for questions regarding the number of times they experienced certain negative consequences as a result of drinking. The questionnaire did not state in the instructions that students should report consequences "as a result of drinking" although one-half (12) of the questions included the word, "drinking" perhaps confusing many of the respondents of how to answer the questions. A number of respondents commented both on the questionnaire and to the survey administrator about the difficulty of responding to the questions. Because of the confusion of respondents and scoring, the decision was made to redesign the scale in two ways.

The instructions were rewritten in a more definitive manner and the format was returned to categorical scoring format similar to Gonzalez (1990) and identical to Presley, Meilman, and Lyerla (1994). All items were retained.

The decision to use the categorical format was based on two factors. Students would be more likely to answer all

the questions if they were given choices, rather than having to recall an actual number of times in the past 12 months. Recall places greater cognitive demands on the respondent. Further, the categorical response format may have the effect of generating a forced distribution in this type of study.

## THESIS STUDY

### Method

Participants. Two hundred and forty-seven undergraduate (N=207) and graduate (N=40) students from within the California State University system were asked to volunteer in a written, questionnaire type survey. Data from one subject was eliminated due to an incomplete survey. Students were from classes picked at random across several schools of study in an effort to obtain a substantial cross-section of students (See Table 2). The primary courses of study were: Business (N=82), Humanities (N=11), Natural Science (N=24), Psychology (N=79), and "Other" Social Sciences (N=33). The age grouping was "over 21" (N=200) and "under 21" (N=90). Members of sororities and fraternities (N=17) participating in this survey were 7% of the respondents. Greek membership at this college campus is estimated to be 5% of the student enrollment. Some participants were offered extra credit for participation by their instructors; others were not. Male and female students were recruited and were treated in accordance with Principle 9 of the "Ethical Principles of Psychologists" (American Psychological Association, 1981).

Materials. The first item presented to participants was a consent form (See Appendix A). A debriefing letter (See Appendix B) was presented to the students immediately upon the conclusion of their participation. Four scales

Table 2

Demographics

Item	Percentage of Students (N=246)
Age	
Under 21	18.3
Over 21	81.3
Gender	
Male	36.6
Female	63.4
Greek Membership	
Yes	7.3
No	89.4
Course of Study	
Business	32.9
Education	5.7
Fine Arts	1.2
Humanities	4.5
Natural Science	10.2
Psychology	32.1
Other Social Science	13.4
School Year	
Freshman	13.0
Sophomore	9.3
Junior	36.6
Senior	25.6
Graduate	15.4
Grade Average	
A	2.0
B	46.7
C	24.0
D or F	27.2
Ethnic Origin	
African-American	15.0
Asian/ Pacific Islander	14.6
American Indian	0.4
Hispanic	18.7
White	49.2
Other	1.6

were used in this study (See Appendixes D to G): "Negative Consequences for Any Reason Scale" (NC); "Negative Consequences Due to Drinking Scale" (ANC); "College Drinking Attitude Scale" (CDAS); "Demographic Questionnaire".

Two negative consequence scales were used in this study. The first scale (NC) measured negative events that students had experienced without any reference to being drinking related. This scale served as baseline for measurement of negative consequences due to drinking. This was a 13-item scale (Appendix D) consisting of 13 negative consequence items. These items were selected from the original 20 item scale of Gonzalez (1990) because they were not drinking specific (i.e., being concerned about your drinking or driving while intoxicated are clearly drinking related and could not be rewritten (sensibly)). As a result of the pilot study, the answer format was returned to the original design requiring the respondent to choose between: "Never", "Once", "Twice", "3-5 Times", "6-9 Times", and "10 or more Times".

The second negative consequence scale (Appendix E) measured negative events related to drinking. The item order for the first 13 questions was identical to the order of the 13-item NC scale. The five positive consequence questions, designed to elicit more accurate self-reporting, were randomly placed among the remaining seven negative consequence items that were drinking specific. The 25-item

scale (ANC) measured negative consequences as a result of drinking alcohol in the last 12 months. Students were asked to respond with the same format as the NC scale.

Attitudes and beliefs about responsible and irresponsible alcohol-related behaviors, were measured by the "College Drinking Attitude Scale" (CDAS) (Gonzalez, 1990, p.124). The CDAS subscale (Appendix F) is a 20-item Likert-type attitude scale designed to assess the degree of responsible attitudes toward alcohol within the context of the college campus. Each of the 20 items asked respondents to rate on a 5-point scale -- from "very unlikely" to "very likely" -- how likely they are to perform the given behavior.

In addition to the three primary scales, basic demographic information was obtained, as well as drinking history (QF), membership in a fraternity or sorority, GPA, and school of study (Appendix G).

Procedure. Students were asked to complete the eight page questionnaire and were told that completion of the survey would take approximately 30 minutes of their time. Students were assured that their responses would be anonymous and for research purposes only. Students were informed that they could discontinue participation at any time without penalty, and were asked to sign the consent form prior to participation.

Upon completion of the survey, students were debriefed



and told where and when they could obtain research results should they so desire. This study was not expected to cause any discomfort; however, students were given information about who to contact for assistance if they did experience any discomfort, or distress.

Reliability analyses were performed on the CDAS, NC, and ANC scales. An overall score was obtained for each subject on the attitude scale (CDAS) and each of the negative consequences scales (NC and ANC) by summing scale items and dividing that total by the number of items answered on the scale. The score for the CDAS scale equals ATTITUDE; the scale score for the NC scale equals NEGCONS and the score for the ANC scale equals ANEGCONS. The ATTITUDE score is indicative of the degree to which the student supports responsible alcohol-related behavior. Prior to summing the scores on the CDAS scale, five items that indicate "irresponsible" behaviors (2, 5, 7, 14, 18) were reverse scored.

Finally, the QF score was obtained by "multiplying the number of drinks (12 oz of beer, 5 oz of wine, or 1.5 oz of liquor) students report usually consuming per drinking occasion [ETOH1] times the number of occasions a student usually drinks per month [ETOH2]" (Gonzalez, 1990, p. 126).

Two poor performance scores were created for use in testing Hypothesis 3. The two scores were created from the questions about frequency of poor performance from the NC

scale (consequences for any reason) and the ANC scale (consequences due to drinking). The same three questions from both scales were used: item 1, "Poor performance on a test?"; item 3 "Poor performance on an important project or paper?"; and item 4, "Not completing or turning in an important project or paper?". The group from the NC scale was named PERFNC and from the ANC scale, PERFANC. Overall grade point average (GPA1) was added to PERFNC and PERFANC for correlation with ATTITUDE.

Hypothesis 1 was tested first by correlation tests: ATTITUDE was correlated with "missing a test" from NC and ANC; ATTITUDE was correlated with "missing a class" from NC and ANC. Next, two partial correlation tests between the ATTITUDE score and the frequency of "missing a test" (from NC and ANC scales), and ATTITUDE and "missing a class" (from NC and ANC scales) were conducted.

Hypothesis 2 and Hypothesis 3 were tested as above with the substitution of injury score for hypothesis two and the substitution of a poor performance score for Hypothesis 3.

Hypothesis 4 was tested by a correlation between the scores obtained on the ATTITUDE scale and the QF score (quantity times frequency).

Hypothesis 5 was tested by a t-test to determine whether there were significant differences between males and females in terms of their frequency and quantity (QF) of alcohol consumption.

Finally, Hypothesis 6 was tested by a t-test which was conducted to determine whether there was significant difference between members and non-members of Greek organizations relative to their total NC scores (NEGCONS) and their total ANC scores (ANEGCONS).

Percentages of frequencies relative to number of times a student experienced negative consequences related to drinking were pulled from the frequencies analyses on the ANC scale and charted for comparison to a national study (Presley, Meilman, & Lysterla, 1994). Because the national sample was significantly larger than this study, a single sample proportion analysis was conducted on each item to test for significance between the percentages from the national study and this study.

Because there have been studies suggesting differences in alcohol consumption between different occupations (Stinson, DeBakey, & Steffens, 1992), oneway ANOVAs were conducted on the "course of study group" (DEM5) for differences relative to consumption of alcohol (ETOH1 and ETOH2), and attitudes toward responsible behaviors (CDAS).

## Results

Data Screening. All variables were examined for univariate normality. Two of the variables, "Number of occasions per month you consumed alcohol" (ETOH1) and "How many drinks per occasion" (ETOH2), showed significant positive skewness (ETOH1,  $z = 15.54$ ; ETOH2,  $z = 11.34$ ), but

were retained for analyses without transformation.

Examination of the distributions indicated that only one case would have been deleted using the 5 standard deviation rule suggested by Tabachnick and Fidell (1989). Specifically, inspection of a histogram of these two variables (ETOH1 and ETOH2) indicated that 14 subjects reported drinking 20 or more times per month. Five subjects reported 10 or more drinks per occasion. Therefore, all subjects were retained.

A test for mean differences between missing and non missing values for ETOH1 and ETOH2 with dependent variables (ATTITUDE, PERFNC, PERFANC, NEGCONS, ANEGCONS) was conducted and no significant differences were found between group means on any variables.

Reliability analyses. Reliability analyses were conducted on the NC, ANC, and CDAS scales (Tables 3, 4, 5). As can be seen from Table 3, the item-total Pearson correlations on the NC scale ranged from .198 to .540. Only 2 item-total correlations were above .538; 5 items had item-total correlations between .404 and .494; three item-total correlations were between .305 and .362 and 3 item-total correlations were below .305 with 1 item-total correlation being .198. That item (NC6) "trouble with police or college authorities") showed 230 of 246 subjects responding "never". Coefficient alpha for NC was .75.

Table 3

Reliability Analysis -- Negative Consequences For Any Reason  
Scale (NC)

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<u>Items</u>	<u>Mean</u>	<u>SD</u>	<u>Corrected Item-Total Correlation</u>	<u>Alpha if Item Deleted</u>
NC1	2.877	1.299	.4787	.7183
NC2	1.366	.801	.4190	.7300
NC3	1.816	.993	.4946	.7198
NC4	1.382	.777	.5406	.7213
NC5	3.539	1.461	.4243	.7265
NC6	1.106	.466	.1987	.7475
NC7	1.081	.528	.2093	.7465
NC8	2.703	1.744	.3488	.7443
NC9	2.033	1.437	.4048	.7290
NC10	3.033	1.533	.5388	.7088
NC11	1.213	.705	.3052	.7397
NC12	1.366	.869	.2205	.7460
NC13	1.492	1.005	.3620	.7331

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Alpha = .747      N = 239  
 Negative Consequence Scale (NC): Mean = 24.983;  
 Variance = 52.579; Standard Deviation = 7.251.  
 Average Item Mean = 1.92.

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Table 4

Reliability Analysis -- Negative Consequences Due to  
Drinking Scale (ANC)

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<u>Items</u>	<u>Mean</u>	<u>SD</u>	<u>Corrected</u> <u>Item-Total</u> <u>Correlation</u>	<u>Alpha if</u> <u>Item</u> <u>Deleted</u>
ANC1	1.125	.400	.5733	.9098
ANC2	1.067	.393	.4703	.9105
ANC3	1.108	.444	.5068	.9100
ANC4	1.075	.370	.5132	.9103
ANC5	1.442	1.037	.6865	.9049
ANC6	1.021	.214	.4587	.9117
ANC7	1.054	.441	.3781	.9111
ANC8	1.385	.895	.5635	.9076
ANC9	1.372	.898	.6181	.9067
ANC10	1.544	1.064	.7860	.9026
ANC11	1.146	.579	.5856	.9083
ANC12	1.063	.389	.4217	.9109
ANC13	1.058	.348	.3845	.9114
ANC14	2.227	1.525	.6915	.9052
ANC15	1.865	1.268	.6543	.9056
ANC16	1.683	1.277	.7209	.9038
ANC17	1.160	.663	.1689	.9131
ANC18	2.163	1.530	.7264	.9043
ANC19	1.439	1.070	.6168	.9064
ANC20	1.049	.359	.3428	.9116
ANC21	1.163	.632	.6471	.9072
ANC22	2.300	1.602	.7542	.9035
ANC23	1.269	.864	.6348	.9065
ANC24	2.004	1.824	.5364	.9131
ANC25	1.012	.110	.1870	.9131

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Alpha = .911      N = 228  
 Negative Consequences (ANC): Mean = 34.584;  
 Variance = 171.543; Standard Deviation = 13.097.  
 Average Item Mean = 1.38.

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Table 5

Reliability Analysis -- College Drinking Attitude Scale  
(CDAS) -- Adjusted

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<u>Items</u>	<u>Mean</u>	<u>SD</u>	<u>Corrected Item-Total Correlation</u>	<u>Alpha if Item Deleted</u>
*CDAS2	4.6293	.8928	.2450	.8115
CDAS3	4.0647	1.3644	.4492	.8012
CDAS4	3.5259	1.5761	.4441	.8018
*CDAS5	4.0560	1.2243	.2791	.8110
CDAS6	4.6379	.8669	.3795	.8062
*CDAS7	4.5647	.9513	.1553	.8155
CDAS8	3.4526	1.4467	.3138	.8102
CDAS9	3.5345	1.4531	.5312	.7955
CDAS10	3.6466	1.4400	.4733	.7995
CDAS11	3.4181	1.4301	.4835	.7989
CDAS12	3.6681	1.3378	.4399	.8018
CDAS13	4.6078	.8200	.3792	.8065
*CDAS14	3.9138	1.2065	.3253	.8083
CDAS15	4.1250	1.2085	.3400	.8075
CDAS16	4.6379	.8259	.4161	.8050
CDAS17	3.7931	1.1244	.4957	.7993
*CDAS18	4.1078	1.2102	.3896	.8048
CDAS19	4.1767	1.2410	.3984	.8043
CDAS20	4.2629	1.0128	.4675	.8014

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Alpha = .813      N = 236

College Drinking Attitude Scale - Adjusted (CDAS): Mean =  
 76.779; Variance = 122.1895; Standard Deviation = 11.053  
 Average Item Mean = 3.84.

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\* Denotes items that were reverse scored

As can be seen from Table 4, the item-total correlations for ANC ranged from .168 to .786. However, 23 item-totals were above .343. Item 17 ("study easier after drinking") had a item-total coefficient of .168 which was probably the result of 226 students reporting "never". Coefficient alpha for ANC was .91.

Because 5 items were pulled from the two negative consequence scales for use in testing some hypotheses, reliability analyses were conducted on those variables. Three of those items created the poor performance score and were "poor performance on a test" (ANC1, NC1), "poor performance on an important project or paper" (ANC3, NC3), and "not finishing an important project or paper" (ANC4, NC4). Item-total Pearson correlations were: ANC1 .552, NC1 .542; ANC3 .775, NC3 .678; ANC4 .610, NC4 .483. The alpha coefficient for poor performance items due to drinking (ANC) was .79, and the alpha coefficient for poor performance items for any reason (NC) was .72.

Two items that were pulled in order to test absenteeism were "missing a test" (ANC2, NC2), and "missing a class" (ANC5, NC5). Coefficient alpha for the ANC2 and ANC5 was .92 and the item-total correlations were ANC2 .867 and ANC5 .867. Item-total correlations for NC2 were .215 and NC5 was .215, and the alpha coefficient was .29.

For the dependent variable, ATTITUDE, item 1 was deleted because it was determined that students had



difficulty understanding the question. Coefficient alpha before deletion was .78. Item-total correlations on the adjusted CDAS scale (Table 5) ranged from .155 to .531. Sixteen of the 20 item-total correlations were above .313; one item-total correlation was .531. Coefficient alpha for the dependent variable, ATTITUDE, after deletion of item CDAS1 was .81.

Testing of Hypotheses. Hypothesis 1 predicted that the higher an ATTITUDE score, the lower the absentee score would be. A correlation was conducted between ATTITUDE scores and the two items related to absenteeism rate on the negative consequences for any reason scale (NC) and the negative consequences due to drinking alcohol scale (ANC) measured by number of missed tests and number of missed classes.

There was a significant negative correlation found between ATTITUDE score and the number of missed tests reported on the ANC ( $r = -.166$ ,  $p = .012$ ), and a significant negative correlation between ATTITUDE and the number of missed classes reported on the ANC scale ( $r = -.353$ ,  $p = < .001$ ). There was no significant correlation found between ATTITUDE and the number of missed tests on the NC scale ( $r = -.008$ ,  $p = .908$ ), nor for the number of missed classes on the NC scale ( $r = -.102$ ,  $p = .125$ ).

A partial correlation was conducted to determine the effect of the missed tests due to drinking on ATTITUDE. The correlation revealed that missing a test due to drinking

(ANC) significantly correlated with ATTITUDE (partial correlation =  $-.178$ ,  $p = .007$ ) even when partialing out the effect of missed tests for any reason (NC).

The same procedure was repeated for missed classes. That correlation revealed that missed classes due to drinking significantly correlated with ATTITUDE (partial correlation =  $-.339$ ,  $p < .001$ ) partialing out the effect of missed classes for any reason.

Hypothesis 2 predicted that the higher the ATTITUDE score, the lower the injury score would be and was also measured by a Pearson product moment correlation test. A correlation was conducted between ATTITUDE and the injury scores on the NC scale and the ANC scale. There was no significant correlation found between ATTITUDE and the number of injuries on either the NC scale ( $r = .019$ ,  $p = .774$ ) or the ANC scale, ( $r = -.120$ ,  $p = .069$ ).

A partial correlation was then conducted in order to determine the relationship of injury scores on the negative consequences scale due to drinking on ATTITUDE. The partial correlation revealed that injuries due to drinking (ANC) did not significantly correlate with ATTITUDE (partial correlation =  $-.129$ ,  $p = .050$ ), partialing out the effect of injuries for any reason.

Hypothesis 3 addressed the relationship of poor performance to ATTITUDE. A correlation was conducted between ATTITUDE score and PERFNC, PERFANC, and GPA. PERFNC

and ATTITUDE did not produce a significant correlation ( $\underline{r} = -.107$ ,  $p = .164$ ). There was, however, a significant negative correlation found between ATTITUDE score and PERFANC ( $\underline{r} = -.212$ ,  $p = .006$ ). The correlation between ATTITUDE and GPA was not significant ( $\underline{r} = .122$ ,  $p = .112$ ).

A partial correlation was then conducted in order to determine the partial correlation of PERFANC and PERFANC on ATTITUDE. The partial correlation revealed that PERFANC significantly correlated with ATTITUDE (partial correlation =  $-.186$ ,  $p = .005$ ) partialing out the effect of PERFANC. PERFANC did not significantly correlate with ATTITUDE (partial correlation =  $-.012$ ,  $p = .853$ ) partialing out the effect of PERFANC.

Hypothesis 4 predicted that the higher a student's ATTITUDE score, the lower the QF score would be. A correlation was conducted between ATTITUDE score and quantity of alcohol consumed (Q) and a significant correlation was found between ATTITUDE score and quantity ( $\underline{r} = -.328$ ,  $p < .001$ ). There was also a significant correlation found between ATTITUDE score and frequency (F), ( $\underline{r} = -.332$ ,  $p < .001$ ). Expectedly, there was a significant correlation found between ATTITUDE score and QF ( $\underline{r} = -.365$ ,  $p < .001$ ).

Hypothesis 5 predicted that males would drink more frequently and consume more alcohol than females. A summary of means and standard deviations for quantity, frequency,

and quantity by frequency of alcohol use by gender, are displayed in Table 6. A  $t$ -test was conducted on frequency of alcohol consumption by gender and no significant differences were found between males and females in terms of frequency of alcohol consumed [ $t(df = 233) = -.98, p = .326$ ]. However, a  $t$ -test conducted on quantity of alcohol consumption revealed significant differences between males and females in terms of quantity of alcohol consumed [ $t(df = 234) = 2.93, p = .004$ ].

A  $t$ -test was then conducted on quantity by frequency of alcohol consumption by gender. Table 6 displays the means and standard deviations. Significant differences were found between males and females in terms of quantity by frequency of alcohol consumed [ $t(df = 233) = 2.77, p = .007$ ].

Hypothesis 6 predicted that members of Greek organizations will report a significantly greater number of negative consequences related to drinking than non-Greeks. The first  $t$ -test revealed no significant differences between non-greeks and greeks on the NC score (NEGCONS) [ $t(df = 227) = 1.85, p = .065$ ]. The second  $t$ -test, conducted on the ANC SCORE (ANEGCONS), also found no significant differences between non-greeks and greeks in terms of number of reported negative consequences due to drinking [ $t(df = 217) = 1.95, p = .052$ ]. A summary, provided in Table 7, displays the means and standard deviations of negative consequences for any reason, and negative consequences due to drinking by Greek

membership.

Table 6

Means and Standard Deviations for ETOH1, ETOH2, AND ETOH by Gender.

Gender	N	Mean	SD
Times per month consumed alcohol			
Males	84	4.119	5.938
Females	151	3.384	5.219
Amount of alcohol per occasion			
Males	85	3.105	3.335
Females	151	1.949	2.031
Quantity by frequency			
Males	84	18.785	30.073
Females	151	9.072	15.370

Table 7

Means and Standard Deviations for NEGCONS and ANEGCONS by Greek Membership.

Greek Membership	N	Mean	SD
Negative Consequences -- Any Reason			
Yes	18	2.132	.615
No	211	1.884	.539
Negative Consequences -- Drinking			
Yes	17	1.592	.586
No	202	1.345	.493

Ancillary testing. To provide construct validity for both negative consequences scales, a correlation was conducted between the NEGCONS score and ETOH2 (alcohol consumption) and ATTITUDE. ATTITUDE did not produce a significant correlation ( $r = -.100$ ,  $p = .144$ ) with NEGCONS, nor did ETOH2 ( $r = -.087$ ,  $p = .207$ ). There were, however, significant correlations between ATTITUDE and ANEGCONS ( $r = -.457$ ,  $p < .001$ ) and between ETOH2 and ANEGCONS ( $r = .444$ ,  $p < .001$ ).

Percentages of frequencies relative to number of times a student experienced negative consequences related to drinking were summed (100 minus percentage of "never") from the frequencies analysis for each item on the ANC scale and compared to a national study (See Table 8). A single sample proportion test was conducted on each variable listed in the comparison chart in order to investigate differences between populations because of the large difference in sample sizes (national study 15,971). Seven variables were significantly different from the national study (Presley, Meilman, & Lysterla, 1994) and are noted on Table 8: "Missed a class" ( $z = -3.18$ ,  $p = .001$ ); "trouble with the police or college authority" ( $z = -4.41$ ;  $p < .001$ ); "in argument or fight" ( $z = -3.98$ ;  $p < .001$ ); "memory loss" ( $z = -2.56$ ,  $p = .010$ ); "do something later regretted" ( $z = -3.27$ ,  $p = .001$ ); "received injury requiring medical attention" ( $z = -4.51$ ,  $p < .001$ ); "criticized for drinking" ( $z = -3.08$ ,  $p = .002$ ).

Table 8

Percentage of Negative Consequences Due to Drinking:Comparison to a National Study

Negative Consequence	National Study N=51,971	This Study		
		All N=236	Drinkers Only N=167	Non N=67
Poor performance on test or project	23.4	22.0	26.8	10.3
Missed Class	30.2	20.7*	26.8	5.9
Trouble with the police/college authority	13.5	3.7*	4.8	1.5
In argument or fight	33.3	21.1*	28.0	2.9
Memory Loss	28.2	20.7*	26.8	4.4
Did something that later regretted	39.3	28.9*	39.3	4.4
Sexual Misconduct	15.0	11.0	15.5	1.5
Thought about or attempted suicide	5.5	5.7	7.7	1.5
Received injury requiring medical attention	16.1	5.3*	6.5	2.9
Drove under the influence	35.6	30.5	41.1	2.9
Have been criticized for drinking	29.0	19.9*	26.8	2.9
Thought had a problem	11.7	11.8	15.5	2.9
Arrested for DWI, DUI	1.7	1.6	1.2	1.2

\* Sample proportion is significantly different than national population.



A oneway ANOVA conducted on course of study between frequency and quantity of alcohol consumption revealed no significant differences between groups. However, a oneway ANOVA conducted with the same group for ATTITUDE revealed a significant difference between groups:  $F(10, 229) = 2.77, p < .05$ . A Tukey-HSD procedure was then performed in order to determine the different group. The discipline, Humanities, was significantly different from Business ( $M = 84.6364$ ) on ATTITUDE score.

A descriptive summary of Greek membership across disciplines revealed that members of Greek organizations were not fairly represented across the sample: "Humanities", 11.1% ( $n = 2$ ); "Natural Science", 11.1% ( $n = 2$ ); "Psychology" 27.8% ( $n = 5$ ); "Other Social Science" 11.1% ( $n = 2$ ); "Education", 5.6% ( $n = 1$ ); "Business" 33.3% ( $n = 6$ ).

### Discussion

The present study investigated the relationship of attitudes toward positive drinking behaviors and consequences previously shown to be related to alcohol abuse, such as absenteeism, poor performance, and injuries.

Unlike previous studies which have used scales related only to drinking, this study employed a "Negative Consequences for Any Reason Scale" (NC), in addition to the "Negative Consequences Due to Drinking Scale" (ANC). The NC scale was employed as a baseline with the idea that some students may exhibit negative behaviors in the absence of



alcohol consumption or, for other reasons. That scale proved successful in ruling out other reasons for absenteeism, poor performance and other negative consequences. The use of the NC scale provided additional support for the idea that certain behaviors are related to alcohol abuse and not some unknown factors.

Items related to absenteeism ("missing a class" and "missing a test") were extracted from both negative consequence scales (NC and ANC) and measured separately with the total score for attitude. The results were positive and agree with what this study expected to find for Hypothesis 1. The result is consistent with previous studies which also found linear relationships between absenteeism and drinking (Presley, Meilman, & Lyerla, 1994) and attitudes about drinking (Gonzalez, 1990).

There was no support for Hypothesis 2 that the higher the attitude score, the fewer incidents of injury, due to drinking, would be reported. It should be noted, however, that 233 students reported never having been injured as a result of drinking. The injury scores for reasons other than drinking were equally as benign.

As expected, the results for Hypothesis 3 were similar to Hypothesis 1 and showed a linear relationship between poor performance and attitude. Gonzalez (1990) found similar patterns and indicated in his study that such results confirmed the need for educational programs focused

on changing attitudes about responsible drinking behaviors.

Differences in quantity of alcohol consumption, frequency of drinking, and quantity by frequency by attitude were investigated. The results supported Hypothesis 4 which stated that the higher the students' positive attitude score toward responsible drinking behaviors, the lower their alcohol consumption and frequency scores would be. Although these results are favorable, they should be interpreted with caution due to several difficulties with the alcohol scores. Ten outliers were retained because only one of them exceeded 5 standard deviations. Retaining those values resulted in a significant positive skewness for both quantity and frequency of alcohol use. A second difficulty was the number of missing cases. Forty (18%) of the students did not answer one, or both, of the items related to quantity and frequency of alcohol. Perhaps the questions were confusing for students and, therefore, difficult for them to answer. The question related to frequency asked, "On average, in the last 12 months, how many occasions per month did you consume alcohol?". Unless the respondent drank at least once a month in the last 12 months, the question essentially could not be honestly answered. Another possibility for not answering that question could, in fact, be related to attitude about alcohol. Tabachnick and Fidell (1989) have suggested that missing values may not be random when an attitudinal scale is included in a study. Following

that suggestion, mean differences were tested for alcohol frequency and consumption with the dependent variables and no significant differences were found; therefore, missing values are assumed to be random. If a similar study is undertaken in the future, it is suggested that the questions related to quantity and frequency of alcohol be rewritten. For example, "How often did you drink in the past 12 months?" might be a better question than "How many times per month did you drink?".

Differences in quantity of alcohol consumption, frequency of drinking, and quantity by frequency by gender were also investigated. Based on results of previous studies, this study hypothesized that male students would drink greater quantities and drink more often than female students. The results did not support Hypothesis 5 in terms of frequency; however, the results did show support for male students drinking greater quantities than female students. These results were interesting in that even though there was a substantial difference in the size of the groups (male = 84, female = 151), the mean differences for frequency of drinking was substantially the same for both groups (male = 4.12, female = 3.38). On the other hand, the results for quantity of alcohol consumed per occasion, for the same two groups, supported that male students drink more than female students (males = 3.10, females = 1.94). There are many plausible explanations for why men reported drinking more

than women. Unfortunately, as explained previously, the generalizability of these results are suspect and, as such, should be interpreted with caution.

The results of this study do not support Hypothesis 6, that members of Greek organizations will experience more negative consequences due to drinking than non Greek members. However, it should be noted that the number of students reporting membership in a Greek organization was a very small sample (n=17). Although there was not statistical significance, it is interesting to note that even with a very small sample, p-value was .052 which could be a consequence of the big differences in sample size. It is felt that with a larger sample size, significant results could be realized which would be more compatible with results from other studies. Future studies should strive to obtain a better cross section of students as well as a greater sample size. Greek membership at the university where this study was conducted is estimated to be 5% of the enrollment. Greek membership reported in this study is 7% of the sample.

Neither the Greek membership group, nor the non-Greek group scored high enough on the negative consequences scale to be placed in a "problem drinker" category beyond "mildly impaired." The "mildly impaired" group required a score of 1 - 5 negative consequences due to drinking.

Interestingly, similar patterns were noted between this

study and a national study (Presley, Meilman, & Lysterla, 1994), especially given the small size of this study as compared to the national study (See Table 8). One disconcerting result of this study (the national study also found this alarming result) was that 30.5% of the students reported driving under the influence and only 1.6% have ever been arrested for a DUI. Further, the correlation between "driving under the influence" and attitude was the highest of any correlation ( $r = -.487$ ,  $p < .001$ ) and "arrest for DUI, was the lowest correlation ( $r = .088$ ,  $p = .185$ ) meaning that the students reported "driving under the influence" more than any other negative consequence of drinking, but getting arrested for "driving under the influence" occurred the least. One implication of these results could be that national educational campaigns (e.g., "Don't Drink and Drive", and "Friends Don't Let Friends Drive") appear to go unheeded by college students. This issue should be a consideration in the design of educational programs targeted to college students.

Investigating the relationships between attitudes toward positive and responsible drinking behaviors and negative consequences due to drinking, can be helpful in formulating new educational/prevention programs. One purpose for investigating these relationships was as a preliminary step for future studies that could look at the possibility of similar attitudes and behaviors in the

workplace. There is evidence of differences among occupations and in that light, ancillary tests were conducted to see if there was any relationship between disciplines and alcohol consumption or attitude. Although the results showed some difference between humanities and business on attitude, the sample size is too small to make any inferences from it. There were no differences between disciplines and alcohol consumption or frequency.

In addition to small sample size, limitations of this study include the possibility of inadequate representation of Greek membership, an inadequate cross-section of all disciplines, and unequal gender representation. Although different wording of the alcohol quantity and frequency questions may have elicited more accurate information, that information did not affect the primary focus of this study which was between attitude and negative consequences. Given the limitations of this study, all results should be interpreted with caution.

Overall, the results of the study indicate that absenteeism and poor performance are related to attitudes about responsible behaviors regarding the use of alcohol. In addition, the results of this study indicate that the number of negative consequences a person experiences as a result of drinking alcohol are related to attitude.

Future studies should continue to address alcohol abuse on the college campus from a biopsychosocial perspective or,

as it has sometimes been called, the cultural perspective, with emphasis on attitude.

Although this study did not directly address the biological component of the biopsychosocial model, the inclusion of both psychological and social components in a single study, such as this one, is an important step in addressing alcohol abuse. Only by integrated and interdisciplinary research efforts will the full effect of alcohol abuse on college campuses and in the workplace be remedied. As has been previously noted, education and prevention programs have not been highly successful in the workplace.

A successful educational program at the college level, founded on a biopsychosocial perspective, could have several effects. The most obvious, of course, would be a change in attitude on the college campus relative to the cultural context of drinking. Further, if a program was successful at the college level, it could be tested in the workplace. Finally, if attitudes can be changed at the college level then perhaps, in time, attitudes about drinking in the workplace could change. Subsequently, the workplace "drinking subculture" could become part of workplace history.

## APPENDIX A

### Consent Form

#### INFORMED CONSENT

The study in which you are about to participate is designed to investigate alcohol use by college students. This study is being conducted by Carol Davis under the supervision of Dr. Diane Pfahler, professor of Psychology. This study has been approved by the Institutional Review board of California State University San Bernardino.

In this study you will be asked to answer questions presented to you on a written questionnaire. Please be assured that any information you provide will be held in strict confidence by the researchers. At no time will your name be reported along with your responses. All data will be reported in a group form only. At the conclusion of this study, you may receive a report of the results.

Please understand that your participation in this research is totally voluntary and you are free to withdraw at any time during this study without penalty, and to remove any data at any time during this study.

Any questions about this study or your participation in the research should be directed to Dr. Pfahler. She can be reached by calling (909) 880-5570

I acknowledge that I have been informed of, and understand, the nature and purpose of this study, and I freely consent to participate. I acknowledge that I am at least 18 years of age.

---

Participants' Signature

---

Date

---

Researcher's Signature

---

Date



## APPENDIX B

### Debriefing Form

#### Debriefing Statement

Thank you for participating in this study. As indicated in the informed consent form, the purpose of this study as to investigate alcohol use on a college campus. The real purpose of the experiment was to investigate differences between male and female college students, and differences between Greek members and non-Greek members, as regards the abuse of alcohol. An additional purpose was to measure the effect of attitudes toward positive drinking behaviors against the quantity and frequency of actual drinking practices.

In order to investigate this area a small deception was necessary; that was to not reveal the entire purpose of the study. We are sorry that we could not tell you about the true purpose of the study, but if you had known about it you may have responded differently. This experiment conforms to the ethical principles established by the American Psychological Association.

It is our sincere hope that you understand the necessity of this small deception and that you can help us in maintaining confidentiality regarding the purpose of this experiment by not speaking to anyone on campus about your experiences here today.

Please contact Dr. Diane Pfahler, ext. 5570, after the end of the fall quarter, if you would like to obtain a copy of the results. If you have any questions, concerns, or feel you have experienced any discomfort regarding this experiment, contact Dr. Pfahler, or the Student Counseling Center.

## APPENDIX C

### Negative Consequences Pilot Scale (PNC)

PLEASE WRITE the NUMBER that is YOUR BEST ESTIMATE in the space provided.

IN THE LAST 12 MONTHS, HOW MANY TIMES HAVE YOU EXPERIENCED.....

- 1) Being nauseated from drinking\_\_\_\_\_
- 2) Driving after drinking too much\_\_\_\_\_
- 3) Studying easier after drinking\_\_\_\_\_
- 4) A hangover\_\_\_\_\_
- 5) Performing poorly on a test\_\_\_\_\_
- 6) Missing a test\_\_\_\_\_
- 7) Performing poorly on an important project or paper\_\_\_\_\_
- 8) More social ease in a group after drinking\_\_\_\_\_
- 9) Not completing or turning in an important project or paper\_\_\_\_\_
- 10) Missing a class\_\_\_\_\_
- 11) Feeling more calm in a class after drinking\_\_\_\_\_
- 12) Trouble with police or college authorities\_\_\_\_\_
- 13) Damaging property, pulling a fire alarm, etc.\_\_\_\_\_
- 14) An argument or a fight\_\_\_\_\_
- 15) Being criticized about your drinking by someone you know\_\_\_\_\_
- 16) Thinking you had a drinking problem\_\_\_\_\_
- 17) Having more fun at a party after drinking\_\_\_\_\_
- 18) A memory loss\_\_\_\_\_
- 19) Doing something that you later regretted\_\_\_\_\_
- 20) Arrest for DWI, DUI\_\_\_\_\_
- 21) Sexual misconduct\_\_\_\_\_
- 22) Unsuccessfully trying to stop drinking\_\_\_\_\_
- 23) Not getting into an argument or a fight after drinking\_\_\_\_\_
- 24) Suicide thoughts or attempts\_\_\_\_\_
- 25) Being hurt or injured\_\_\_\_\_

## APPENDIX D

### Negative Consequence for Any Reason Scale (NC)

\*\*\* CIRCLE THE CATEGORY WHICH BEST APPLIES \*\*\*

IN THE LAST 12 MONTHS, HOW MANY TIMES HAVE YOU - FOR ANY REASON - EXPERIENCED.....

1) Poor performance on a test?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

2) Missing a test?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

3) Poor performance on an important project or paper?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

4) Not completing or turning in an important project or paper?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

5) Missing a class?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

6) Trouble with police or college authorities?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

7) Damaging property, pulling a fire alarm, etc.?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

8) An argument or a fight?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

9) A memory loss?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

10) Doing something that you later regretted?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

11) Sexual misconduct?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

12) Suicide thoughts or attempts?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

13) Being physically hurt or injured requiring medical attention?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

## APPENDIX E

### Negative Consequences Due to Drinking Scale (ANC)

\*\*\* CIRCLE THE CATEGORY WHICH BEST APPLIES \*\*\*

HOW MANY TIMES HAVE YOU EXPERIENCED THE FOLLOWING DUE TO YOUR DRINKING  
IN THE LAST 12 MONTHS?

1) Poor performance on a test?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

2) Missing a test?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

3) Poor performance on an important project or paper?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

4) Not completing or turning in an important project or paper?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

5) Missing a class?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

6) Trouble with police or college authorities?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

7) Damaging property, pulling a fire alarm, etc.?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

8) An argument or a fight?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

9) A memory loss?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

10) Doing something that you later regretted?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

11) Sexual misconduct?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

12) Suicide thoughts or attempts?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

13) Being physically hurt or injured requiring medical attention?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

14) More social ease in a group?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

15) Being nauseated or vomiting?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

16) Driving a car while under the influence?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

17) Studying easier?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

18) A hangover?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

19) Being criticized about your drinking?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

20) Feeling more calm in a class after drinking?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

21) Unsuccessful attempts to stop drinking?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

22) Having more fun at a party?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

23) Thinking you had a drinking problem?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

24) Not getting into an argument or a fight after drinking?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

25) Being arrested for DWI, DUI?

(NEVER) (ONCE) (TWICE) (3-5 TIMES) (6-9 TIMES) (10 or more TIMES)

APPENDIX F

College Drinking Attitude Scale (CDAS)\*

CIRCLE the NUMBER which most applies to you

Item: How likely are you to ...

1) Always use alcohol as an adjunct to an activity rather than as the primary focus of attention

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

2) Rationalize drinking by such comments as "I just need one more to relax" or "How about one for the road."

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

3) Provide nonalcoholic alternative drinks; fruit juices, unspiked punch, coffee, or tea at your party.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

4) Set limits on how many drinks you're going to have on a night out or at a party.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

5) Gulp drinks for the stronger effect that rapid drinking produces.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

6) Respect a person who chooses to abstain from alcohol.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

7) Drink alone from a desire to escape boredom or loneliness.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

8) Not be insistent about "refreshing" or refilling drinks.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

9) Tell a friend that there is nothing funny about being drunk when he or she is bragging about drinking.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

10) Seriously think about the problems of alcohol abuse.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

11) Talk about how to use alcohol responsibly with your roommate or close friend.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

12) Express displeasure to someone who has had too much to drink at your party.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

13) Provide transportation or overnight accommodations to someone who is unable to drive safely after drinking at your party.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)



14) Always celebrate by drinking when things go well for you.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

15) Provide food when you're hosting a party or social event where alcohol is being served.

very unlikely	unlikely	undecided	very likely	likely
(1)	(2)	(3)	(4)	(5)

16) Discourage a date or friend who is under the influence of alcohol from driving.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

17) Get involved in trying to help a friend or associate who has a drinking problem.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

18) Drink alcohol primarily to get drunk.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

19) Know and stay within your personal drinking limit based on body weight if you are going to drive.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

20) Seek help if you thought you had a drinking problem.

very unlikely	unlikely	undecided	likely	very likely
(1)	(2)	(3)	(4)	(5)

\* Gonzalez (1990)



## APPENDIX G

### Demographic Questionnaire

#### DEMOGRAPHIC CHARACTERISTICS

1. GENDER  
Male\_\_\_\_  
Female\_\_\_\_
  
2. ETHNIC ORIGIN  
African-American\_\_\_\_  
Asian/Pacific Islander\_\_\_\_  
American Indian\_\_\_\_  
Hispanic\_\_\_\_  
White\_\_\_\_  
Other\_\_\_\_
  
3. STUDENT STATUS  
Undergraduate\_\_\_\_  
    Full time\_\_\_\_ (16 units, or more)  
    Part time\_\_\_\_ (less than 16 units)  
Graduate\_\_\_\_  
    Full time\_\_\_\_ (12+ units)  
    Part time\_\_\_\_ (1-11 units)
  
4. YEAR IN SCHOOL  
Freshman\_\_\_\_  
Sophomore\_\_\_\_  
Junior\_\_\_\_  
Senior\_\_\_\_  
Graduate\_\_\_\_
  
5. COURSE OF STUDY  
Business\_\_\_\_  
Education\_\_\_\_  
Fine Arts\_\_\_\_  
Humanities\_\_\_\_  
Natural Science\_\_\_\_  
Psychology\_\_\_\_  
Other Social Science\_\_\_\_
  
6. DID YOU TRANSFER FROM ANOTHER COLLEGE?  
Yes\_\_\_\_  
No\_\_\_\_

IF YES, WHICH ONE?

\_\_\_\_\_

7. LOCATION OF RESIDENCE  
Fraternity/Sorority house\_\_\_\_\_  
On-campus dormitory\_\_\_\_\_  
Off-campus alone\_\_\_\_\_  
Off-campus with friends\_\_\_\_\_  
Live with parents\_\_\_\_\_

8. FRATERNITY or SORORITY MEMBERSHIP  
Yes\_\_\_\_\_  
No\_\_\_\_\_

IF YES, WHICH ONE?

\_\_\_\_\_

9. EMPLOYMENT  
yes, full time\_\_\_\_\_  
yes, part time\_\_\_\_\_  
no\_\_\_\_\_

10. LOCATION OF EMPLOYMENT  
off-campus\_\_\_\_\_  
on-campus\_\_\_\_\_  
not employed\_\_\_\_\_

11. AGE  
under 21\_\_\_\_\_  
over 21\_\_\_\_\_

12. MARITAL STATUS  
Single\_\_\_\_\_  
Married\_\_\_\_\_  
Separated\_\_\_\_\_  
Divorced\_\_\_\_\_  
Widowed\_\_\_\_\_

13. GPA  
Overall\_\_\_\_\_  
Within major\_\_\_\_\_

14. ON AVERAGE, IN THE LAST 12 MONTHS HOW MANY OCCASIONS  
PER MONTH DID YOU CONSUME ALCOHOL?\_\_\_\_\_

15. HOW MANY DRINKS (12 oz of beer, 5 oz of wine, or 1.5 oz  
of liquor) DID YOU CONSUME PER OCCASION?\_\_\_\_\_

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